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highlights

a weekly digest of recently released British Columbia statistics

Prices

- **British Columbia's annual inflation rate increased to 2.0% in September, its highest level in four years.** The inflation rate has been climbing since May, bringing to an end a three-year-long hiatus during which the increase in BC's overall price level has remained at or below one percent. Despite the spike, BC residents continued to experience the lowest inflation of any province. Canada's inflation rate was 2.6% in September, and rates in other provinces ranged from 2.2% in Saskatchewan to 3.5% in Alberta.

  Compared to other Canadians, British Columbians faced higher than average increases in the cost of health and personal care (3.0%, compared to 1.9% nationally), transportation (6.3% versus 5.9%), household operations (1.2% versus 0.9%) and food (1.5% versus 1.4%). Gasoline prices were up more than a quarter (+26.9%) in BC, above the average increase (20.9%) for all provinces.

  However, the cost of recreation, education and reading materials (1.6% versus 2.9%) rose less than the national average. In addition, shelter costs continued to decline in September (-0.1%), and alcohol and tobacco prices fell 0.5%, largely due to a 3.3% decrease in the cost of alcohol purchased at stores. Nationally, shelter costs were up 1.9%, and the Canadian CPI for alcohol and tobacco rose 1.5% in September.

  Source: Statistics Canada

- **The province continues to owe its relatively low inflation rate to falling shelter costs, which were down 0.1% from September 1998.** The CPI for owned accommodation, which has been falling since 1994, was down 1.8% in September. In addition, a freeze on electricity prices helped offset the effect of higher prices for piped gas (+17.7%) and other heating fuel (+8.5%). However, renters have not benefitted from lower housing prices: rented accommodation in the province cost 0.4% more last month than it did a year earlier.

  Excluding shelter costs, BC's inflation rate would have been 2.8% in September, just slightly below the Canadian rate (less shelter) of 2.9%. Shelter costs include owned and rented accommodation, as well as water, fuel and electricity.

  Source: Statistics Canada & BC STATS

- **Whitehorse (1.4%), Yellowknife (1.9%) and Victoria (1.9%) were the only cities where the inflation rate was below two percent in September.** Of the other Canadian cities for which inflation rates are reported, Edmonton (4.0%) had the highest rate, while Vancouver (2.0%) had the lowest. *Source: Statistics Canada*

- **The cost of new housing in the province continued to fall in August.** The new housing price index (NHPI) in Vancouver was down 3.9%, while Victoria's NHPI dropped to 4.1% below the August 1998 level. The latest declines mean that a new house built in Victoria cost 25% less now than in 1992. In Vancouver, the cost of new housing has decreased 16% during the same period.

  Nationally, new house prices are currently 1% higher than seven years ago. During the twelve months ending in August, they increased 0.9%.

  Source: Statistics Canada

The Economy

- **New motor vehicles sales in the province were flat in August.** The number of vehicles sold was at virtually the same level (+0.1%) as a year earlier. This was the first time since January

Report **High Tech Jobs in the High Tech Sector?**

Did you know...

On a typical day in 1998, 60 marriages were solemnized in BC. Thirty-two were civil ceremonies, while 28 were performed by religious representatives. More than half (36) were first marriages for both parties.

that new vehicle sales in the province have not risen. Canadian sales were up 13.6%, boosted by booming markets in Ontario (+19.1%), Quebec (+16.7%), and Atlantic Canada, where sales rose 16.8% overall, reflecting double-digit gains in all four provinces. Slow truck sales were responsible for lacklustre sales in BC, Manitoba (+1.0%) and Alberta (+1.2%). *Source: Statistics Canada*

Government spending on culture

- **Federal, provincial and local governments spent $672 million–or $170 per person–in support of culture-related activities in BC during the 1997/98 fiscal year.** This was down from $183 in the previous year. Local governments spent the most ($74 per person) on culture-related activities in 1997/98, followed by the provincial ($63) and federal ($33) governments.

  Public libraries account for the bulk (80%) of local government spending on culture in Canada. At the provincial level, libraries (mainly those in schools and universities) and heritage resources together accounted for about two-thirds of total expenditures, with the remainder going to support a wide variety of other activities, such as arts education, the performing arts, film, broadcasting, sound recording, visual and literary arts, and multiculturalism. Federal spending on culture primarily supports broadcasting (51%), museums and other heritage resources (23%) and film and video (11%). The performing arts received about 4% of total federal government culture spending in Canada. *Source: SC, Catalogue 87F0001XPB*

- **On a per capita basis, the federal government spends three times as much on cultural activities in Quebec ($113), PEI ($111) and Ontario ($101) as it does in BC ($33).** Federal spending in the other western provinces ranges from $34 per capita in Saskatchewan to $55 in Manitoba. This is partly related to the fact that most of the broadcasting activity, and many of the nation's museums and performing arts groups, are located in central Canada.

  Source: Statistics Canada & BC STATS

From home to school

- **In 1996/97, 40% of children who had participated in early childhood programs were judged by their teachers as being near the top of their kindergarten class in communication skills, while 38% were near the top in learning skills.** This compares to 25% and 24%, respectively, of those who did not attend such programs. Children whose mothers held a post-secondary degree or diploma were twice as likely to be enrolled in early childhood programs as those whose mothers did not graduate from high school. Youngsters from higher-income families ($40,000+) were more than three times as likely to be enrolled as those whose families had a household income of less than $20,000.

  Source: SC, Catalogue 89F0117XIE

- **Children whose parents read to them more than once a day were 1.6 times as likely to be near the top of their class in terms of learning skills, and 2.3 times as likely to be near the top in communication skills as those who were read to less often.** Children who had early exposure to books and learning were also better at performing mathematical tasks. They were twice as likely to be able to compare numbers, 2.6 times as likely to recognize geometric shapes and twice as likely to know simple concepts of time. *Source: SC, Catalogue 89F0117XIE*

Computer technology in schools

- **Most Canadian schools are connected to the Internet, giving 9 out of every 10 students in the country access to the World Wide Web for educational purposes.** In BC, there was one computer for every 8 pupils in elementary, intermediate and secondary schools. This was better than the Canadian average (9) for elementary schools and equal to the average for intermediate schools. The average Canadian secondary school student had slightly better access (1 computer for every 7 students) than students in BC. Overall, Alberta, Ontario and BC were the provinces where the pupil to computer ratio was the lowest. *Source: Statistics Canada*

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For data originating from Statistics Canada: data sourced to 'Statistics Canada' has been retrieved from CANSIM, the agency's electronic database; otherwise the source is identified as 'SC' plus the publication name or catalogue number.

October 15, 1999 Infoline Report:

High Tech Jobs in the High Tech Sector?

Contact: Steve Miller / (250) 387-0365

Originally published in August 1999 issue, *Business Indicators*. Annual subscription: $60 + GST

Highlights

- Over half the employment in the high technology sector involves occupations requiring a scientific or technical knowledge base.
- The majority of the knowledge-based jobs in the high technology sector are in high technology services.
- Only 18 per cent of jobs in high technology manufacturing require a scientific or technical knowledge base.

Introduction

When the Japanese economy began its recovery following the Second World War, manufacturing concentrated on low cost production of designs that originated in Europe and North America. Many of the products were "high tech", but the industry was based primarily on cheap, unskilled labour. In time, research and development became more important in Japan, and the skills of the labour force increased. However, manufacturing also moved to lower cost environments, elsewhere in Asia.

California's Silicon Valley offers another example of economic development based on high technology industry. In that case, there was a heavier emphasis on scientific research and design innovation, and a high proportion of scientifically trained workers in the labour force, but less emphasis on manufacturing.

Other jurisdictions have looked to the success of technology based economies, and it has been a natural progression to hold out high technology as a vehicle for economic development locally.

British Columbia's high technology industry has in fact been growing rapidly in the 90's. But, does employment in the industry include many lesser-skilled occupations? Or is the BC high technology sector following a different path, taking most advantage of our advanced educational, communications, and social infrastructure, producing jobs in highly trained occupations?

This report looks at the occupations of workers in the BC high technology sector, separating them into high technology (scientific and technical skills) and non-high technology categories. This permits some conclusions about which development path our province is following.

Defining High Technology

Note: The source of the occupational data used in preparing this report is the 1996 Census of Population from Statistics Canada. Because of the way the Census information is coded, the definition of the high technology sector is broader than that used in *"Profile of the British Columbia High Technology Sector"*. Consequently, the employment figures are larger. Figures from *"Profile of the British Columbia High Technology Sector"* should be used for direct estimates of employment in the high technology industries. On the other hand, the Census remains the only source for examining the high technology occupations in relation to the industrial sectors of the economy.

BC Stats uses a definition of the high technology sector that includes a selection of industries that stress research and development, that employ scientists and technicians, or that produce or use sophisticated products. This definition encompasses all or part of twenty manufacturing industries (such as Aircraft and Aircraft Parts or Communication and Other Electronic Equipment) and three service industries (such as Computer and Related Services, and Engineering Services). The annual report *"Profile of the British Columbia High Technology Sector"* provides measures of GDP, revenue, employment, wages and salaries, etc., for these industries.[1]

High technology occupations for this study were selected using the National Occupation Classification (NOC). NOC includes ten broad occupation groups. Of these, two were selected for closer examination. These are "Natural and Applied Sciences and Related Occupations" and "Health Occupations". Within these broad groups, BC Stats selected specific occupations that

[1] The latest Profile report and a paper describing how the high technology industries were chosen are available at the BC Stats website, www.bcstats.gov.bc.ca

require a science knowledge base in performing the main duties, are unrelated to primary industries, and may involve the use of high technology equipment. In addition, managers in engineering, architecture, science, and information systems were included.

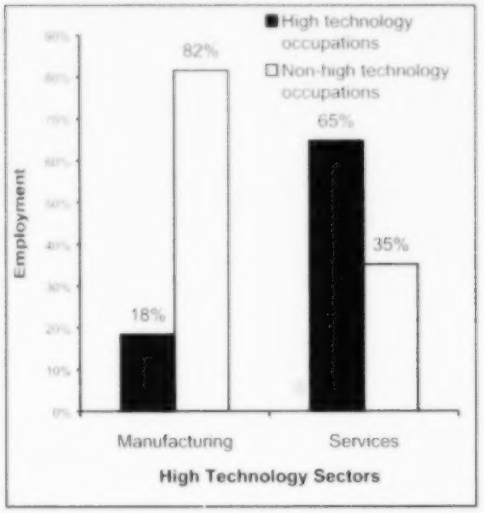
Employment in the High Technology Sector

The data show that just over 50 per cent of employment in the high technology sector involves high technology occupations. Since high technology occupations account for only 5 per cent of total employment in all industries, the high technology sector is clearly following the path of development using skilled labour.

However, within the high technology sector, there is considerable variation in how intensively workers with high technology occupations are used. To illustrate the extent of this variation, the high technology sector may be broken down into two sub-sectors: Manufacturing and Services. Figure 1 shows that the high technology service sub-sector has a much higher dependency on workers with high technology occupations than the high technology manufacturing sub-sector. Since the high technology service sub-sector is bigger than the high technology manufacturing sub-sector, this means that the vast majority of workers with high technology occupations work for the high technology service sub-sector.

The high technology service sector contains businesses such as engineering firms where professionals offer their skilled services. These businesses consist of the professionals themselves with the assistance of support workers. In contrast, high technology manufacturing industries rely on products that need to be manufactured and shipped. The manufacturing portion of the high technology manufacturing sub-sector is very much like manufacturing in any other sector. A welder who assembles aircraft parts may be doing basically the same thing as a welder in a truck plant. Since high technology manufacturing companies need to do a considerable amount of work that is not high technology oriented, they naturally support a lower percentage of workers with high technology occupations.

Figure 1. Most high tech Service workers are in high tech occupations. Not so for Manufacturing.



Focusing on High Technology Occupations

Over half of the high technology occupation workers in the high technology sector are in Architectural, Engineering and other Scientific and Technical services. When this category is combined with the other two industries in the high technology service sub-sector, almost 90 per cent of the high technology occupation jobs are accounted for. The remaining high technology jobs are found in businesses in the high technology manufacturing sub-sector.

The high technology service sub-sector consists mostly of businesses that provide skills and expertise to other businesses. For example, engineering firms work for construction companies. Consumers do not go to engineers and buy plans directly. In effect, the role of the high technology service sub-sector is to help other companies and businesses get their jobs done more efficiently.

Figure 2 shows the prominence of Architectural, Engineering and other Scientific and Technical Services as an employer of high technology occupations. The lesser role of Manufacturing industries is also apparent.

There are fifty-seven high technology occupations at the most detailed, four-digit, NOC level. These occupations have been aggregated into 8 broader occupation groups.

The groups are presented in Figure 3, along with the two largest four-digit NOC occupations in each group. The groupings are useful summaries, while the two largest occupations in a category help show what kinds of jobs are in each category.

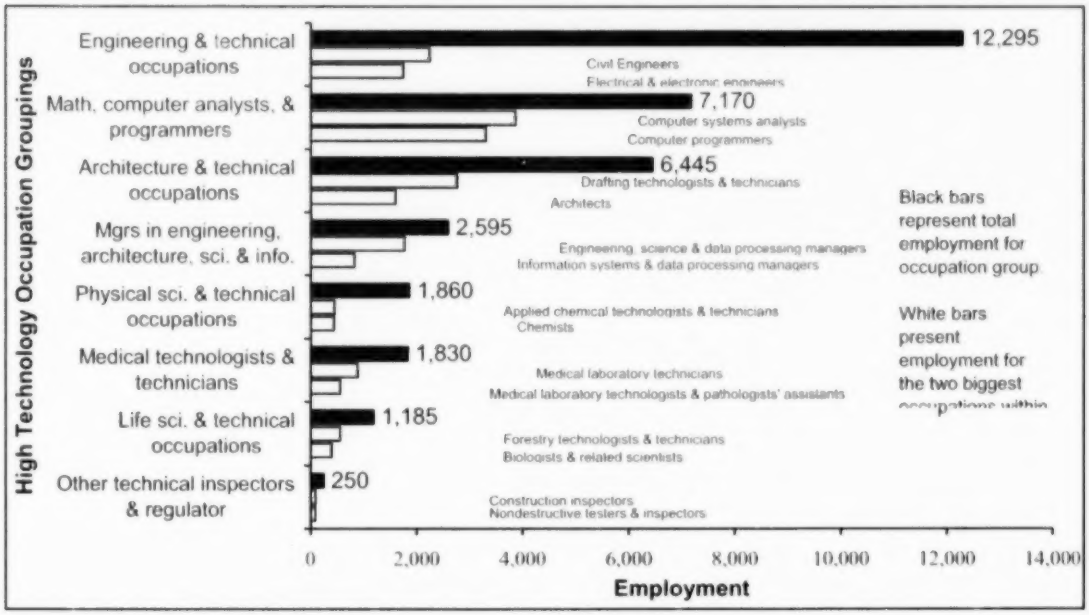
The biggest occupation group is Engineering & Technical Occupations. This occupation group accounts for over 35 per cent of workers with high technology occupations in the high technology sector. The largest two occupations are Civil Engineering and Electrical & Electronic Engineering, but other engineering occupations such as Mechanical Engineering and Computer Engineering are not much smaller.

The next biggest grouping, Math, Computer Analysts & Programmers, accounts for a further 21 percent of workers with high technology occupations in the high technology sector. The two biggest occupations in this grouping, which are both computer related, account for almost the entire grouping.

Figure 2. High tech services are the main employers of workers in high tech occupations.

Rank	High Technology Industries	% of Total High Tech Workers
	Service Industries	
1	Architectural, engineering & other sci. & tech services	55.8%
2	Computer and related services	27.6%
3	Medical and other health laboratories	5.1%
	Manufacturing Industries	
4	Communication and other electronic equip. industries	3.0%
5	Office, store and business machine industries	2.5%
6	Other machinery and equipment industries	2.5%
7	Scientific and professional equipment industries	0.7%
8	Electrical industrial equipment industries	0.6%
9	Other manufactured products industries	0.6%
10	Aircraft and aircraft parts industry	0.5%
11	Industrial chemicals industries n.e.c.	0.4%
12	Pharmaceutical and medicine industry	0.4%
13	Communications and energy wire and cable industry	0.2%
14	Shipbuilding and repair industry	0.1%

Figure 3. High technology occupation structure, by major occupation groups



Focusing on non-High Technology Occupations

The high technology sector employs just about as many workers in non-high technology occupations as workers in high technology occupations. Although this is true for the sector as a whole, there is substantial variation in the fraction of workers in non-high technology occupations across industries within the high technology sector.

The industries in the high technology service sub-sector use a much lower concentration of workers in non-high technology occupations than industries in the high technology manufacturing sub-sector. Figure 4 shows that for the high technology service sub-sector as a whole, non-high technology occupation workers are in the minority. Architectural, Engineering & Other Scientific & Technical Services is the largest employer with only 32 per cent of its workers in non-high technology occupations.

Figure 4. Per cent of workers with non-high technology occupations in the high *technology service sector.*

SIC Code	High technology service industries	1996 Census Employment		
		Non-high technology workers	High technology sector total	Per cent
775	Architectural, engineering & other scientific & technical services	8,790	27,580	32%
772	Computer & related services	6,270	15,560	40%
868	Medical & other health laboratories	1,135	2,840	40%
	Total service workers	16,195	45,980	35%

Figure 5 shows that in the high technology manufacturing sub-sector, a clear majority of workers have non-high technology occupations. Although all industries in this sub-sector have the majority of their workers in non-high technology occupations, there is substantial variation in the percentage of non-high technology workers across industries.

Office, Store & Business Machine Industries has the lowest percentage, 62 per cent, while the Shipbuilding & Repair Industry has the highest, 96 per cent. This difference is substantial and indicates that the industries in the high technology manufacturing sub-sector use technology to differing degrees.

Figure 5. Per cent of workers with non-high technology occupations in the high technology manufacturing sector.

SIC Code	High technology manufacturing industries	1996 Census Employment		
		Non-high technology occupation	High technology sector total	Per cent
319	Other machinery & equipment industries	5,010	5,835	86%
399	Other manufactured products industries	2,785	2,985	93%
335	Communication & other electronic equipment industries	2,240	3,240	69%
336	Office, store & business machine industries	1,370	2,215	62%
327	Shipbuilding & repair industry	1,085	1,125	96%
391	Scientific & professional equipment industries	1,080	1,305	83%
321	Aircraft & aircraft parts industry	875	1,030	85%
374	Pharmaceutical & medicine industry	870	1,000	87%
371	Industrial chemicals industries n.e.c.	860	1,005	86%
337	Electrical industrial equipment industries	660	860	77%
338	Communications & energy wire & cable industry	185	265	70%
	Total	17,020	20,865	82%

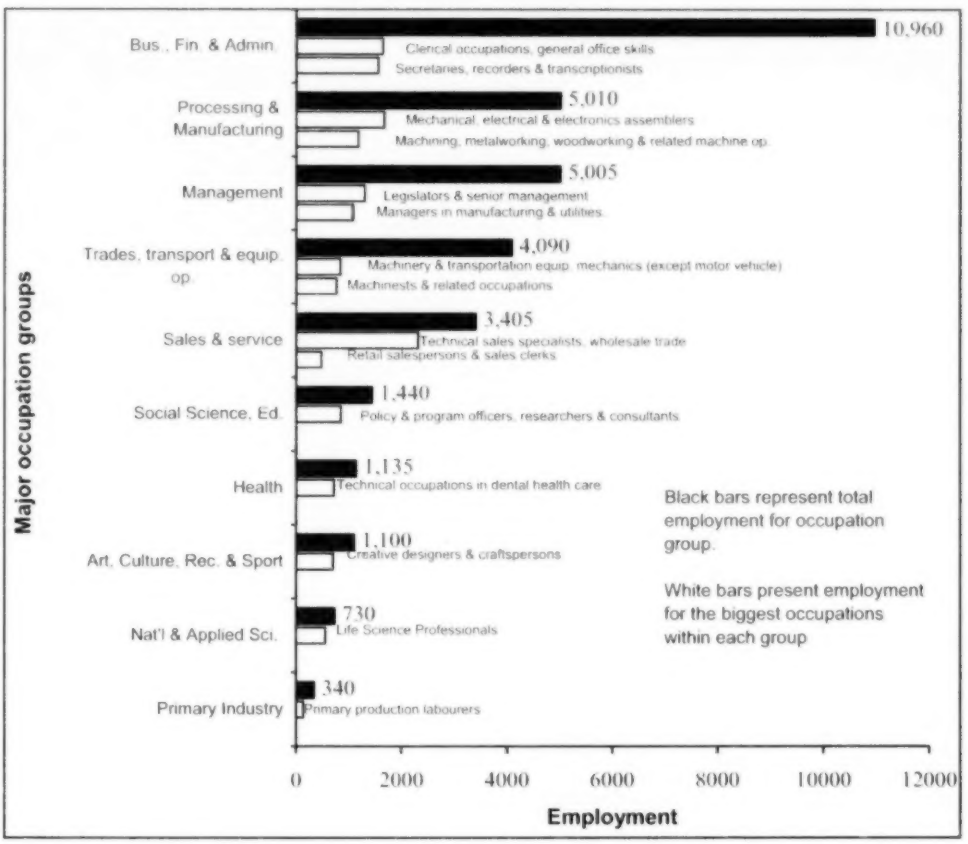
The non-high technology jobs can be grouped into ten categories based on the first digit of their NOC code. These groups are much broader than the groupings used in the 8 categories for the high technology occupations because they encompass the entire economy. Again, within each occupation grouping, one or two examples of occupations are given to help illustrate the kind of jobs the category contains.

Figure 6 shows that the largest number of non-high technology workers in the high technology sector is in Business, Finance & Administration. The two largest occupations within this category are related to secretarial work. However, the category contains a broader spectrum of occupations ranging from Office Equipment Operators to Library, Correspondence & Related Info Clerks.

High technology companies, like all other companies, need to take care of the day-to-day chores that keep a company running.

The second largest group of non-high technology occupations in the high technology sector is processing and manufacturing. Although there are a substantial number of workers in this category who work in Architectural, Engineering and other Science And Technology Services which is in the high technology service sub-sector, the vast majority of these workers work in the high technology manufacturing sub-sector. This partly explains why the high technology manufacturing sub-sector has a much higher concentration of workers with non-high technology occupations.

Figure 6. Employment of non-high technology workers in the high technology sector, by major occupation groups.



More Information is available

This report was adapted from the larger paper: *"High Technology Occupations in British Columbia, 1996"*. That paper extends the analysis to include employment in high technology occupations outside of the high technology sector. In addition, it describes wage rates for both high technology and non-high technology occupations, both within and outside the high technology sector.

Finally, methodology sections explain the sources and limitations of the statistics presented. *"High Technology Occupations in British Columbia, 1996"* can be found on the BC Stats web site.

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BC at a glance . . .

POPULATION (thousands)	Jul 1/99	% change on one year ago
BC	4,029.3	0.7
Canada	30,568.0	0.9
GDP and INCOME		
(BC - at market prices)	1997	% change on one year ago
Gross Domestic Product (GDP) *($ millions)*	109,347	3.3
GDP *($ 1992 millions)*	98,201	2.2
GDP *($ 1992 per Capita)*	24,775	0.1
Personal Disposable Income *($ 1992 per Capita)*	16,340	-2.3
TRADE ($ millions)		
Manufacturing Shipments (seas. adj.) Jul	3,075	10.6
Merchandise Exports (raw) Jun	2,463	13.7
Retail Sales (seasonally adjusted) Jul	2,805	1.2
CONSUMER PRICE INDEX		
(all items - 1992=100)	Sep '99	% change on one year ago
BC	112.2	2.0
Canada	111.4	2.6
LABOUR FORCE (thousands)		
(seasonally adjusted)	Sep '99	% change on one year ago
Labour Force - BC	2,064	0.9
Employed - BC	1,899	1.2
Unemployed - BC	165	-1.9
		Sep '98
Unemployment Rate - BC *(percent)*	8.0	8.2
Unemployment Rate - Canada *(percent)*	7.5	8.3
INTEREST RATES (percent)	Oct 13/99	Oct 14/98
Prime Business Rate	6.25	7.25
Conventional Mortgages - 1 year	6.95	6.50
- 5 year	8.00	6.75
US/CANADA EXCHANGE RATE	Oct 13/99	Oct 14/98
(avg. noon spot rate) Cdn $	1.4812	1.5455
US $ *(reciprocal of the closing rate)*	0.6749	0.6483
AVERAGE WEEKLY EARNINGS		
(industrial aggregate - dollars)	Jul '99	% change on one year ago
BC	627.86	1.1
Canada	614.36	1.3

SOURCES:

Population, Gross Domestic Product, Trade, Prices, Labour Force, Earnings } Statistics Canada

Interest Rates, Exchange Rates: Bank of Canada Weekly Financial Statistics

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Next week

- Quarterly Regional Statistics, 3rd Quarter, 1999

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